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This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (original): A method of calculating effective power relating to a capacitor, comprising the steps of:

obtaining a equilibrium temperature of the capacitor for each of a plurality of sine waves, and substituting a first capacitance and a first dielectric tangent of the capacitor for each of a plurality of equilibrium temperatures into the following equation:

$$ P e = \frac{\tan \delta}{1 + (\tan \delta)^2} \cdot \pi\, f\, C\, b^2 $$

Pe	: effective power
tan δ	: dielectric tangent
C	: capacitance
f	: frequency
b	: sine-wave amplitude

in order to obtain a first effective power for each of the equilibrium temperatures;

obtaining a voltage value and a frequency from the waveform of a periodic voltage applied to both ends of the capacitor, and setting a plurality of provisional temperatures, and obtaining a second capacitance and a second dielectric tangent for each of the provisional temperatures, and substituting the second capacitance and the second dielectric tangent into the following equation:

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$$P e = \frac{t a n \delta}{1 + (t a n \delta)^2} \cdot \pi f C (a^2 + b^2)$$

Pe   : effective power
tan δ   : dielectric tangent
C   : capacitance
f   : frequency
a   : cosine-wave amplitude
b   : sine-wave amplitude

in order to obtain second effective power corresponding to the periodic voltage for each of the provisional temperatures;

determining a temperature at which the first effective power is approximately equal to the second effective power as a target equilibrium temperature of the capacitor; and

determining the first and second effective powers corresponding to the target equilibrium temperature as a target effective power corresponding to the periodic voltage.

Claim 2 (original): A method of calculating effective power relating to a capacitor according to Claim 1, wherein the step of calculating the second effective power comprises the steps of:

performing Fourier expansion for the periodic voltage;

calculating effective power for each of a plurality of harmonics; and

determining the sum of the calculated effective powers of the harmonics as the second effective power corresponding to the periodic voltage.

Claim 3 (original): A method of measuring effective power consumed by a capacitor, wherein a periodic voltage is applied to the capacitor, and the waveform of the periodic voltage applied to both ends of the capacitor is measured, and the effective power consumed by the capacitor is calculated from the measured waveform of the

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periodic voltage using the method of calculating the effective power relating to the capacitor according to Claim 1.

Claim 4 (original): A method of selecting a capacitor, comprising the steps of:

obtaining an equilibrium temperature of the capacitor for each of a plurality of sine waves, and substituting a first capacitance and a first dielectric tangent of the capacitor for each of a plurality of equilibrium temperatures into the following equation:

$$P_e = \frac{\tan \delta}{1 + (\tan \delta)^2} \cdot \pi f C b^2$$

Pe	: effective power
tan δ	: dielectric tangent
C	: capacitance
f	: frequency
b	: sine-wave amplitude

in order to obtain a first effective power for each of the equilibrium temperatures;

obtaining a voltage value and a frequency from the waveform of a periodic voltage applied to both ends of the capacitor, and setting a plurality of provisional temperatures, and obtaining a second capacitance and a second dielectric tangent for each of the provisional temperatures, and substituting the second capacitance and the second dielectric tangent into the following equation:

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$$P e = \frac{t a n \, \delta}{1 + (t a n \, \delta)^2} \cdot \pi f C \, (a^2 + b^2)$$

Pe   : effective power
tan δ   : dielectric tangent
C   : capacitance
f   : frequency
a   : cosine-wave amplitude
b   : sine-wave amplitude

in order to obtain a second effective power corresponding to the periodic voltage for each of the provisional temperatures;

determining a temperature at which the first effective power is approximately equal to the second effective power as a target equilibrium temperature of the capacitor, and determining the first and second effective powers corresponding to this target equilibrium temperature as a target effective power corresponding to the periodic voltage; and

comparing the target effective power corresponding to the periodic voltage with an allowable power capacity of the capacitor in order to determine whether or not the capacitor is available.

Claim 5 (original): A calculation apparatus for calculating effective power relating to a capacitor, comprising a calculator, wherein the calculator stores data on a plurality of capacitors including capacitances and dielectric tangents thereof which are determined based on a voltage characteristic, a frequency characteristic, and a temperature characteristic of the capacitors, and data on a first effective power for each of a plurality of equilibrium temperatures of the capacitors;

when a predetermined capacitance required for an electric circuit using one of the capacitors and the waveform of a periodic voltage applied to both ends of the capacitor are input, a second effective power at each of a plurality of provisional temperatures is calculated from the input waveform of the periodic voltage;

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the calculator determines a predetermined temperature at which the first effective power is approximately equal to the second effective power as a target equilibrium temperature of the capacitor;

the calculator determines the first effective power and the second effective power corresponding to the target equilibrium temperature as a target effective power corresponding to the periodic voltage; and

the calculator compares a stored allowable power of the capacitor with the target effective power corresponding to the periodic voltage in order to determine whether or not the capacitor is available.

Claim 6 (original): A recording medium storing a program for calculating effective power relating to a capacitor by using a computer, wherein the program stores data on a plurality of capacitors including capacitances and dielectric tangents thereof which are determined based on a voltage characteristic, a frequency characteristic, and a temperature characteristic of the capacitors, and data on a first effective power for each of a plurality of equilibrium temperatures of the capacitors,

wherein when a predetermined capacitance required for an electric circuit using one of the capacitors and the waveform of a periodic voltage applied to both ends of the capacitor are input, the program calculates a second effective power at each of a plurality of provisional temperatures from the input waveform of the periodic voltage,

wherein the program determines a predetermined temperature at which the first effective power is approximately equal to the second effective power as a target equilibrium temperature of the capacitor,

wherein the program determines the first effective power and the second effective power corresponding to the target equilibrium temperature as a target effective power corresponding to the periodic voltage,

wherein the program compares a stored allowable power of the capacitor with the target effective power corresponding to the periodic voltage in order to determine whether or not the capacitor is available.